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ASME B107.52M-1998

NAIL-PULLER BARS: SAFETY REQUIREMENTS

AN AMERICAN NATIONAL STANDARD



The American Society of Mechanical Engineers

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The American Society of
Mechanical Engineers

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FOREWORD

(This Foreword is not part of ASME B107.52M-1998.)

The American National Standards Committee B107, Socket Wrenches and Drives, under sponsorship by The American Society of Mechanical Engineers, held its organizational meeting on June 28, 1967. Subsequently, the Committee was reorganized as an ASME Standards Committee and its title was changed to Hand Tools and Accessories.

The scope of this Standard is limited to the essential safety considerations specifically applicable to nail-puller bars.

This Standard was previously numbered B209.9-1991.

The development of this Standard was initiated by the Striking and Struck Tools Standards Committee, consisting of technical representatives of Manufacturer members of the Hand Tools Institute (HTI).

Suggestions for improvement of this Standard are welcome. They should be sent to: The American Society of Mechanical Engineers, Secretary, ASME B107 Main Committee, Three Park Avenue, New York, NY 10016-5990.

This revision was approved as an American National Standard on March 3, 1998.

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Hand Tools and Accessories

(The following is the roster of the Committee at the time of approval of this Standard.)

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CONTENTS

Foreword iii
Standards Committee Roster v

1 General 1

2 Normative References 1

3 Definitions 1

4 General Requirements 2

5 Safety Requirements and Limitations of Use 3

Figure
1 Nomenclature for Nail-Puller Bars 2

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NAIL-PULLER BARS: SAFETY REQUIREMENTS

1 GENERAL

1.1 Scope

This Standard provides safety requirements for the design, construction, testing, and use of nail-puller bars. These bars, also known as nail claws, are intended specifically for use in extracting nails embedded in forms, crates, or structures. Wrecking, stripping, prying, lining, and aligning pry bars, crowbars, and similar tools that are not intended to be struck in their accepted use are excluded.

1.2 Purpose

This Standard is intended to serve as a guide in selecting and using the hand tools covered. Details of design, testing, and use of the tools covered are specified only as they relate to safety. It is not the purpose of this Standard to specify the details of manufacturing.

This Standard is also meant to serve as a guide in developing manuals and posters and for the training of personnel in safe practices.

1.3 Application

This Standard may be used as a guide by state authorities or other regulatory bodies in the formulation of laws or regulations. It is also intended for voluntary use by establishments that use or manufacture the tools covered.

The methods employed to ensure compliance with this Standard shall be determined by the proper regulatory or administrative authority.

1.4 Shall and Should

Mandatory requirements of this Standard are characterized by the word "shall." If a provision is of an advisory nature, it is indicated by the word "should," or is stated as a recommendation.

1.5 Equivalent

The word "equivalent" in this Standard shall be interpreted to mean alternative designs or features that will provide an equal degree of safety.

2 NORMATIVE REFERENCES

The following documents form a part of this Standard to the extent specified herein. At the time of publication, the editions indicated are valid. All standards are subject to revision, and parties with agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI Z87.1-1989, Practice for Occupational and Educational Eye and Face Protection (includes supplement and partial revision ANSI Z87.1a-1991)

ANSI Z535.4-1991, Product Safety Signs and Labels

Publisher: American National Standards Institute, 11 West 42nd Street, New York, NY 10036

ASTM A 29/A 29M-93a, Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold Finished, General Requirements for

ASTM A 322-91, Standard Specification for Steel Bars, Alloy, Standard Grades

ASTM A 331-95, Standard Specification for Steel Bars, Alloy, Cold-Finished

ASTM A 576-90b (Reapproved 1995), Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality

ASTM A 681-94, Standard Specification for Tool Steels Alloy

ASTM E 18-94, Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

ASTM F 1667-95, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

Publisher: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428

Guide to Hand Tools — Selection, Safety Tips, Proper Use and Care

Publisher: Hand Tools Institute, 25 North Broadway, Tarrytown, NY 10591

3 DEFINITIONS (See Fig. 1 as applicable)

body: the straight portion of the bar used for gripping during nail-pulling operations

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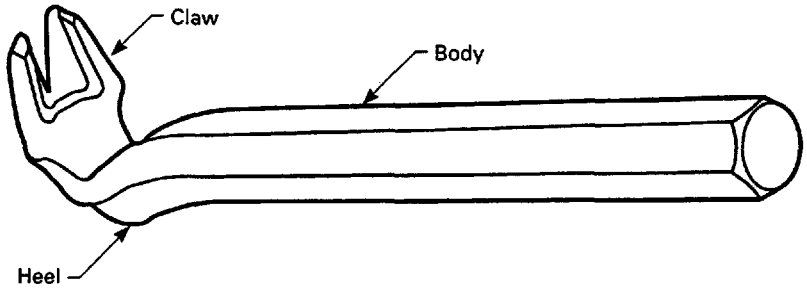
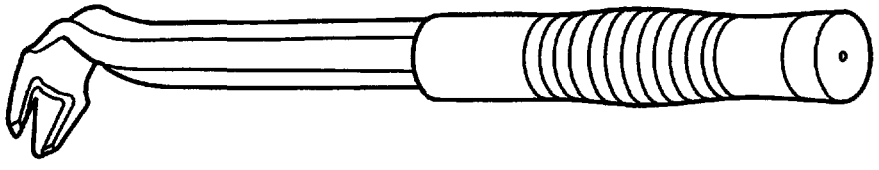
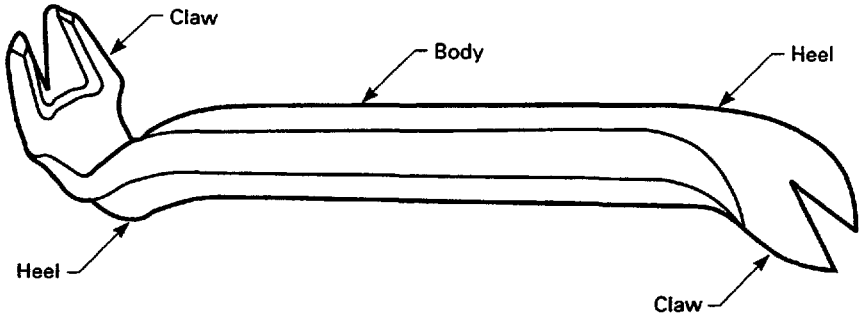


(a) Single Claw Without Grip



(b) Single Claw With Grip



(c) Double Claw

FIG. 1 NOMENCLATURE FOR NAIL-PULLER BARS

claw: the nail-pulling end of the bar having a tapered V-shaped opening for gripping the nail shank

handle grip: when provided, material securely attached to the grip end of the body

heel: the portion of the bar intended to be struck, which is the outer surface of the curved section of the bar adjacent to the claw end

safety message: the information imprinted on or affixed to the bar that is intended to promote safety

4 GENERAL REQUIREMENTS

4.1 Design

4.1.1 The nail-puller bar shall be provided with a slotted claw, at one or both ends of the bar, suitable for pulling nails.

4.1.2 The nail-puller bar, otherwise meeting the requirements of this Standard, may be the manufacturer's standard design.

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4.1.3 The nail-puller bar shall be free of nonfunctional sharp edges, points, and surface roughness that could inflict personal injury to the user.

4.2 Materials

4.2.1 Nail-puller bars shall be made from special-quality, fine-grain, hot-rolled or cold-finished carbon or alloy steel bars, or from an equivalent material, having good wear-resisting and shock-resisting qualities and conforming to any of the following: ASTM A 29/A 29M, ASTM A 322, ASTM A 331, ASTM A 576, or ASTM A 681.

4.2.2 Nail-puller bars shall be free of manufacturing and material defects, such as seams, laps, pipes, and cold shuts, that would jeopardize sound construction. They shall conform to the requirements for mechanical properties specified in para. 4.3, and shall withstand the tests specified in para. 4.4.

4.3 Mechanical Properties

Nail-puller bars, excluding the heel, shall have a hardness of not more than 55 HRC or equivalent. The heel shall have a hardness of not more than 45 HRC or equivalent.

4.4 Tests

Many tests required herein are inherently hazardous, and adequate safeguards for personnel and property shall be employed in conducting such tests.

4.4.1 General. Nail-puller bars shall be capable of meeting tests specified in paras. 4.4.2 and 4.4.3. Separate samples shall be used for each of these tests. Failure to meet the requirements of any of the tests indicates that the nail-puller bars are not in compliance with this Standard.

As a result of the following tests, there shall be no cracks or bending of the claw or tips and no cracking or chipping of the V-shaped opening.

4.4.2 Hardness Determination Test. Hardness determination of nail-puller bars shall be made in accordance with ASTM E 18.

4.4.3 Nail-Pulling Test. Six nails (16d) corresponding to ASTM F 1667 designation F 1667 NLCMS-11B shall be driven into a fir, spruce, or hemlock board with a minimum thickness of 3.50 in. (88.9 mm) so that the nail heads are flush with the board surface. Using an appropriate size ball peen, hand drilling, or engineer's hammer (see para. 5.1), the claw end of the nail-puller bar is to be driven into the wood under the nail heads by striking the heel so that the V-shaped opening grips the nail shanks. Each nail is to be completely removed from the wood by successively engaging the nail shank with the V-shaped opening of the claw.

5 SAFETY REQUIREMENTS AND LIMITATIONS OF USE

5.1

The nail-puller bar is a special-purpose tool designed and intended only for the specific use of extracting embedded nails from forms, crates, or structures. The claw is intended to be driven into the wood under a nail head by striking the heel with an appropriate hammer such as a ball peen, hand drilling hammer, or engineer's hammer with a striking face diameter approximately 0.375 in. (9.53 mm) larger than the heel of the nail-puller bar. A nail hammer shall not be used to strike a nail-puller bar. (The striking face is too small and may chip.) A pipe extension or other form of "cheater" to increase the leverage of any nail-puller bar shall never be used.

5.2

A hammer blow should always be struck squarely with the hammer face parallel to the heel. Glancing blows and overstrikes and understrikes should be avoided. No other part of the nail-puller bar should be struck.

5.3

Safety goggles or equivalent eye protection conforming to ANSI Z87.1 shall be worn by the user and all persons in the immediate area in which any nail-puller bar is being used to avoid possible injury from flying objects.

5.4

Nail-puller bars shall be inspected prior to each use and their use discontinued at the first sign of cracking, chipping, mushrooming, or bending.

5.5

Handle grips that have loosened shall be repaired or replaced.

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5.6

No part of the nail-puller bar shall be ground, welded, treated by reheating, or otherwise altered from the original condition as furnished by the manufacturer.

5.7

Instructors and employers shall stress proper use and safety in the use of this special-purpose tool and shall emphasize the necessity to wear and ensure the use of safety goggles. The publication *Guide to Hand Tools — Selection, Safety Tips, Proper Use and Care* provides guidelines for safe use of these tools.

5.8

To avoid eye or other bodily injury, the nail-puller bar shall be used only as specified in para. 5.1 above.

5.9

Each nail-puller bar shall be stamped, labeled, or otherwise marked by the manufacturer with the following symbol and safety message, or equivalent:



WARNING
WEAR SAFETY GOGGLES
USER AND BYSTANDER

This safety message shall be located in a position that will not interfere with the quality or performance of the tool.

The principles set forth in ANSI Z535.4 shall be used as the guide for alternate, equivalent methods of labeling.

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AMERICAN NATIONAL STANDARDS FOR HAND TOOLS

Socket Wrenches, Hand (Inch Series) B107.1-1993
Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact) (Inch Series) B107.2-1995
Socket Wrenches, Power Drive (Non-Impact) (Inch Series) ..... B107.3-1978(R1991)
Driving and Spindle Ends for Portable Hand, Impact, Air, and Electric Tools (Percussion Tools Excluded) B107.4M-1995
Socket Wrenches, Hand (Metric Series) B107.5M-1994
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Inch Series) B107.6-1994
Adjustable Wrenches B107.8M-1996
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Metric Series) B107.9M-1994
Handles and Attachments for Hand Socket Wrenches — Inch and Metric Series B107.10M-1996
Pliers, Diagonal Cutting, and Nippers, End Cutting B107.11M-1993
Nut Drivers (Spin Type, Screwdriver Grip) (Inch Series) B107.12-1997
Pliers — Long Nose, Long Reach B107.13M-1996
Hand Torque Tools B107.14M-1994
Flat Tip and Phillips Screwdrivers B107.15-1993
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